

Abstract**Generation of variable differential group delay**

5 An apparatus for generating variable DGD is particularly
for use in a PMD compensator. The apparatus has first,
second and third birefringent elements arranged in order
between the input and output of the compensator and
having first, second and third differential group delays
10 (DGDs) in the ratio 1:2:1. The orientation of the PSPs
of the signal in each element relatively to the principal
axes of the element is controlled, such that a change in
orientation between the first and second elements is
equal and opposite to a change in orientation between the
15 second and third elements. This arrangement provides
symmetrical relative rotations of the signal PSPs and
principal axes about the central birefringent element.
In combination with the 1:2:1 ratio, it can be shown that
compensation of any first order PMD can be achieved
20 without the compensator introducing additional second
order PMD. The required level of first order PMD
compensation is selected by controlling the amount of the
orientation changes.